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|-------------------------------|------------------------|---------------------|--|
| <b>Notice of Allowability</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                               | 09/224,376             | HARVELL, JOSEPH C.  |  |
|                               | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                               | Jungwon Chang          | 2154                |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 32-34, 36-44.
2. ☒ The allowed claim(s) is/are 32-34 and 36-44, now renumbered as claims 1-12.
3. ☐ The drawings filed on \_\_\_\_\_ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
  1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☒ CORRECTED DRAWINGS ( as "replacement sheets" ) must be submitted.
  - (a) ☒ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948 ) attached
    - 1) ☐ hereto or 2) ☒ to Paper No./Mail Date 4/13/2001.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. <input type="checkbox"/> Notice of References Cited (PTO-892)</li> <li>2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</li> <li>3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br/>Paper No./Mail Date _____</li> <li>4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br/>of Biological Material</li> </ol> | <ol style="list-style-type: none"> <li>5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</li> <li>6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br/>Paper No./Mail Date <u>7/1/04</u>.</li> <li>7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment</li> <li>8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance</li> <li>9. <input type="checkbox"/> Other _____</li> </ol> |
|---|---|

  
 JOHN FOLLANSBEE  
 SUPERVISORY PATENT EXAMINER  
 TECHNOLOGY CENTER 2100

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Alan Cooper, Reg. No. 51,217 on August 3, 2004.

2. The application has been amended as follows:

#### In Claims

Please substitute claim 32 as follows:

Claim 32 (Currently Amended) A method for implementing a heartbeat protocol, comprising:

sending, directly to one or more selected servers, heartbeat messages from a single selected computer, indicating the availability of computer resources on one or more computers in a network associated with the single selected computer, such that loss of heartbeat messages from the single selected computer is indicative that all computer resources on the one or more computers are unavailable, and the presence of a heartbeat from the single selected computer is indicative that all computer resources are available;

generating a message by the single selected computer in accordance with the heartbeat protocol to indicate availability status of the one or more computer resources; and

Art Unit: 2154

~~imposing a minimum heartbeat period on the single selected computer based on reliability of the connection between the server and one or more computers in the group.~~

transmitting the message that indicates unavailability of the one or more computer resources by the single selected computer before a predetermined downtime; and

receiving an acknowledgement of the unavailability message from the one or more servers to the single selected computer.

Please substitute claim 36 as follows:

Claim 36 (Currently Amended) A method for implementing a heartbeat protocol, comprising:

sending, directly to one or more selected servers, heartbeat messages from a single selected computer, indicating the availability of computer resources on one or more computers in a network associated with the single selected computer, such that loss of heartbeat messages from the single selected computer is indicative that all computer resources on the one or more computers are unavailable, and the presence of a heartbeat from the single selected computer is indicative that all computer resources are available;

generating a message by the single selected computer in accordance with the heartbeat protocol to indicate availability status of the one or more computer resources;

transmitting the message that indicates unavailability of the one or more computer resources by the single selected computer before a predetermined downtime; and

generating an acknowledgement of unavailability message by the one or more servers to the single selected computer.

Please substitute claim 37 as follows:

Claim 37 (Currently Amended) A method for implementing a heartbeat protocol, comprising:

directly receiving heartbeat messages sent by a single selected computer to one or more selected servers in a network associated with the single selected computer, the heartbeat messages indicating the availability of resources on one or more computers, such that loss of heartbeat from the single selected computer is indicative that all computer resources are unavailable, and the presence of a heartbeat from the selected computer is indicative that all computer resources are available;

generating a message by the single selected computer in accordance with the heartbeat protocol to indicate availability status of the one or more computer resources;

determining from the presence or absence of the heartbeat messages that all computer resources are available or unavailable, wherein acknowledgements of unavailability to computers that indicate unavailability are provided;

transmitting the message that indicates unavailability of the one or more computer resources by the single selected computer before a predetermined downtime; and

providing a response to a message query for the computer resources for which the heartbeat is absent that the computer resources are unavailable.

Please substitute claim 43 as follows:

Claim 43 (Currently Amended) A method for implementing a heartbeat protocol comprising:

sending, directly to one or more selected servers, heartbeat messages from a single selected

Art Unit: 2154

computer, indicating the availability of computer resources on one or more computers, such that loss of heartbeat messages from the single selected computer in a network associated with the single selected computer is indicative that all computer resources on the one or more computer are unavailable, ~~and the presence of a heartbeat from the single selected computer is indicative that all computer resource on the one or more computer are unavailable,~~ and the presence of a heartbeat from the single selected computer is indicative that all computers are available;

generating a message by the single selected computer in accordance with the heartbeat protocol to indicate the availability status of the one or more computer resources; and

transmitting the message to the one or more selected servers before a predetermined downtime, wherein acknowledgements of unavailability to computers that indicate unavailability are provided.

Please substitute claim 44 as follows:

Claim 44 (Currently Amended) A method for implementing a heartbeat protocol, comprising:

directly receiving heartbeat messages sent by a single selected computer to one or more selected servers in a network associated with the single selected computer, the heartbeat messages indicating the availability of resources on one or more computers, such that loss of heartbeat from the single selected computer is indicative that all computer resources are unavailable, and the presence of a heartbeat from the selected computer is indicative that all computer resources are available;

generating a message by the single selected computer in accordance with the heartbeat protocol to indicate availability status of the one or more computer resources;

transmitting the message to the one or more selected servers;

determining from the presence or absence of the heartbeat messages that all computer resources are available or unavailable, wherein acknowledgements of unavailability to computers that indicate unavailability are provided;

transmitting the message that indicates unavailability of the one or more computer resources by the single selected computer before a predetermined downtime; and

providing a response to a message query for the computer resources for which the heartbeat is absent that the computer resources are unavailable; and

~~imposing a minimum heartbeat period on the single selected computer based on reliability of the connection between the server and one or more computers in the group.~~

### REASONS FOR ALLOWANCE

3. The following is an examiner's statement of reasons for allowance: The claimed invention provides novel methods for generating and receiving an acknowledgement of an unavailability message from servers to a single selected computer based on receiving a message that indicates unavailability of computer resources by the single selected computer before a predetermined downtime. The methods for generating and receiving an acknowledgement of an unavailability message reads in the supporting of the specification on page 17, lines 5-15. By issuing acknowledgement of unavailability message, results in eliminating latency which was not taught or suggested by the prior art of record.

Art Unit: 2154

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jungwon Chang whose telephone number is (703)305-9669. The examiner can normally be reached on 9:30-6:00 (Monday-Friday).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John A Follansbee can be reached on (703)305-8498. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



JWC  
August 4, 2004

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